```
                        TITLE 'CP/M 3 Patch - Version 3.0'
                        ;*****************************
                        ;*****************************
                        ;**                         **
                        ;**       P A T C H         **
                        ;**                         **
                        ;**    AUGUST  15  1982     **
                        ;**                         **
                        ;*****************************
                        ;*****************************
                        ;
                        ;
0100                    ORG     100H                ;BEGINNING OF TPA
                        ;
                        ;*********************************
                        ;* BDOS FUNCTIONS
                        ;*********************************
0000 =          RETURN  EQU     0                   ;RETURN TO CCP
0002 =          CONOUT  EQU     2                   ;CONSOLE OUTPUT
0006 =          CONIN   EQU     6                   ;CONSOLE INPUT
0009 =          PSTRING EQU     9                   ;PRINT STRING
000A =          RSTRING EQU     10                  ;READ STRING
000C =          VERSION EQU     12                  ;CP/M VERSION
000F =          OPENF   EQU     15                  ;OPEN FILE
0010 =          CLOSEF  EQU     16                  ;CLOSE FILE
0014 =          READF   EQU     20                  ;READ FILE
001A =          DMAF    EQU     26                  ;SET DMA
0022 =          WRITERF EQU     34                  ;WRITE RANDOM
002D =          ERRMODE EQU     45                  ;SET ERROR MODE
                        ;
                        ;*********************************
                        ;* NON GRAPHIC CHARACTERS
                        ;*********************************
000D =          CR      EQU     0DH                 ;CARRIAGE RETURN <CR>
000A =          LF      EQU     0AH                 ;LINE FEED ^J
0018 =          CTRLX   EQU     018H                ;^X
0003 =          CTRLC   EQU     03H                 ;^C
0008 =          BAK     EQU     08H                 ;<-
007F =          RUB     EQU     07FH                ;<- (DEL)
                        ;
                        ;*********************************
                        ;* FCB, BUFFER AND BDOS LOCATIONS
                        ;*********************************
0005 =          BDOS    EQU     05H                 ;BDOS ENTRY POINT
005C =          FCB     EQU     05CH                ;FILE CONTROL BLOCK
0065 =          SPEC    EQU     065H                ;FILE SPEC BEGINNING LOCATION
0080 =          BUF     EQU     080H                ;PASSWORD BUFFER
                        ;
                        ;*********************************
                        ;* BEGINNING OF PROGRAM
                        ;*********************************
0100 C3DC07             JMP     BEGIN
                        ;
                        ;*********************************
                        ;* PATCH HEADER / PATCH AREA
                        ;*********************************
```

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```
                0103 0000000000         DW      0,0,0,0,0,0             ;UNDEFINED AREA
                010F 00                 DB      0
                0110 5041544348         DB      'PATCH VERSION3.0'      ;PROGRAM NAME AND VERSION
                0120 2020205041         DB      '   PATCH.COM    '      ;PROGRAM AS FOUND ON DISK
                0130 0000000000         DW      0,0,0,0,0,0,0,0         ;UNDEFINED AREA
                0140 0000000000         DW      0,0,0,0,0,0,0,0
                0150 434F505952         DB      'COPYRIGHT 1982, '      ;COPYRIGHT AND YEAR
                0160 4449474954         DB      'DIGITAL RESEARCH'
                0170 3135313238         DB      '151282'                ;VERSION DATE [DAY-MONTH-YEAR]
                0176 00000000           DB      0,0,0,0                 ;PATCH BIT MAP
                017A 3635343332         DB      '654321'                ;SERIAL NUMBER IDENTIFIER
                                        ;
                                        ;*********************************
                                        ;* BEGINNING OF PROGRAM
                                        ;*********************************
                0180 C3DC07             JMP     BEGIN                   ;BEGIN PROGRAM
                                        ;
                                        ;*********************************
                                        ;* INITIALIZING ROUTINE
                                        ;*********************************
                                INIT:
                0183 3A6F00             LDA     06FH
                0186 32210A             STA     NUM
                0189 2A6D00             LHLD    06DH                    ;PATCH NUMBER INPUTED
                018C 221B0A             SHLD    NUMBER
                018F 0E2D               MVI     C,ERRMODE               ;SET ERROR MODE SO NO
                0191 1EFF               MVI     E,255                   ;BDOS ERROR MESSAGES WILL
                0193 CD0500             CALL    BDOS                    ;APPEAR
                0196 11FD07             LXI     D,INTRO$MESS
                0199 CD3C06             CALL    PRINT                   ;PRINT 'PATCH '
                                        ;
                                CHECK$VER:
                019C 0E0C               MVI     C,VERSION
                019E CD0500             CALL    BDOS                    ;GET VERSION
                01A1 7C                 MOV     A,H                     ;'H'=0 -> CP/M
                01A2 FE00               CPI     0H                      ;'H'=1 -> MP/M
                01A4 C22307             JNZ     WRNGVER                 ;JUMP IF WRONG O.S.
                01A7 7D                 MOV     A,L
                01A8 FE30               CPI     030H
                01AA DA2307             JC      WRNGVER                 ;JUMP IF WRONG VERSION
                01AD C9                 RET
                                        ;
                                        ;*********************************
                                        ;* CHECK FILE TYPES
                                        ;* CHECK DEFAULT ROUTINES
                                        ;*********************************
                                CHECK$FILE:
                01AE 3A5D00             LDA     FCB+1
                01B1 FE20               CPI     ' '
                01B3 C0                 RNZ
                01B4 11BC08             LXI     D,FILE$PRMT$MESS
                01B7 CD3C06             CALL    PRINT
                01BA 3E12               MVI     A,18
                01BC 32020A             STA     FILE$BUFF
                01BF 11020A             LXI     D,FILE$BUFF
                01C2 0E0A               MVI     C,RSTRING
```

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```
 113  01C4 CD0500          CALL    BDOS                ;ASK FOR FILE NAME
 114  01C7 3A030A          LDA     FILE$BUFF+1
 115  01CA FE00            CPI     0
 116  01CC CAD107          JZ      STOP
 117                  PARSE:
 118  01CF 3A050A          LDA     FILE$BUFF+3
 119  01D2 FE3A            CPI     ':'
 120  01D4 CA3302          JZ      PARSE$DRIVE
 121  01D7 21040A          LXI     H,FILE$BUFF+2
 122                  PARSE2:
 123  01DA 0608            MVI     B,8
 124  01DC 115D00          LXI     D,FCB+1
 125                  PARSE$NAME:
 126  01DF 7E              MOV     A,M
 127  01E0 FE2E            CPI     '.'
 128  01E2 CAFD01          JZ      PARSE3
 129  01E5 FE20            CPI     ' '
 130  01E7 CA1F02          JZ      PARSE$NUM
 131  01EA FE61            CPI     'a'
 132  01EC DAF601          JC      PARSE$NAME2
 133  01EF FE7B            CPI     '{'
 134  01F1 D2F601          JNC     PARSE$NAME2
 135  01F4 D620            SUI     020H
 136                  PARSE$NAME2:
 137  01F6 12              STAX    D
 138  01F7 23              INX     H
 139  01F8 13              INX     D
 140  01F9 05              DCR     B
 141  01FA C2DF01          JNZ     PARSE$NAME
 142                  PARSE3:
 143  01FD 23              INX     H
 144  01FE 116500          LXI     D,FCB+9
 145  0201 0603            MVI     B,3
 146                  PARSE$TYPE:
 147  0203 7E              MOV     A,M
 148  0204 FE20            CPI     ' '
 149  0206 CA2002          JZ      PARSE$NUM2
 150  0209 FE61            CPI     'a'
 151  020B DA1502          JC      PARSE$TYPE2
 152  020E FE7B            CPI     '{'
 153  0210 D21502          JNC     PARSE$TYPE2
 154  0213 D620            SUI     020H
 155                  PARSE$TYPE2:
 156  0215 12              STAX    D
 157  0216 23              INX     H
 158  0217 13              INX     D
 159  0218 05              DCR     B
 160  0219 CA1F02          JZ      PARSE$NUM
 161  021C C30302          JMP     PARSE$TYPE
 162                       ;
 163                  PARSE$NUM:
 164  021F 23              INX     H
 165                  PARSE$NUM2:
 166  0220 7E              MOV     A,M
 167  0221 FE20            CPI     ' '
 168  0223 C8              RZ
```

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```
169  0224 326D00          STA     6DH
170  0227 23              INX     H
171  0228 7E              MOV     A,M
172  0229 326E00          STA     6EH
173  022C 2A6D00          LHLD    6DH
174  022F 221B0A          SHLD    NUMBER
175  0232 C9              RET
176                       ;
177                  PARSE$DRIVE:
178  0233 3A040A          LDA     FILE$BUFF+2
179  0236 FE61            CPI     'a'
180  0238 DA4202          JC      PARSE$DRIVE2
181  023B FE7B            CPI     '{'
182  023D D24202          JNC     PARSE$DRIVE2
183  0240 D620            SUI     020H
184                  PARSE$DRIVE2:
185  0242 D640            SUI     040H
186  0244 325C00          STA     FCB
187  0247 21060A          LXI     H,FILE$BUFF+4
188  024A 3A5C00          LDA     FCB
189  024D FE11            CPI     17
190  024F D2A407          JNC     BAD$DRIVE
191  0252 C3DA01          JMP     PARSE2
192                       ;
193                  CHECK$SPEC:
194  0255 216500          LXI     H,SPEC
195  0258 0603            MVI     B,3
196                  CHECK$SPEC2:
197  025A 7E              MOV     A,M
198  025B FE20            CPI     ' '
199  025D C0              RNZ
200  025E 23              INX     H
201  025F 05              DCR     B
202  0260 C25A02          JNZ     CHECK$SPEC2
203  0263 21434F          LXI     H,04F43H            ;='CO'
204  0266 226500          SHLD    SPEC
205  0269 3E4D            MVI     A,'M'
206  026B 326700          STA     SPEC+2
207  026E 3E01            MVI     A,1
208  0270 32180A          STA     TYPE
209  0273 C9              RET
210                       ;
211                  CHECK$TYPE:
212  0274 CD7A02          CALL    CHECK$COM           ;CHECK FILE TYPE
213  0277 C39602          JMP     CHECK$PRL           ;IF .COM OR .PRL
214                       ;                           ;1=>COM 2=>PRL
215                  CHECK$COM:
216  027A 3A180A          LDA     TYPE
217  027D FE01            CPI     1
218  027F 2A6500          LHLD    SPEC
219  0282 7D              MOV     A,L
220  0283 FE43            CPI     'C'
221  0285 C0              RNZ
222  0286 7C              MOV     A,H
223  0287 FE4F            CPI     'O'
224  0289 C0              RNZ
```

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```
                        LDA     SPEC+2
028A 3A6700             CPI     'M'
028D FE4D               RNZ
028F C0                 MVI     A,1
0290 3E01               STA     TYPE
0292 32180A             RET
0295 C9                 ;
                        ;
                CHECK$PRL:                              ;CHECK IF .PLR
0296 2A6500             LHLD    SPEC
0299 7D                 MOV     A,L
029A FE50               CPI     'P'
029C C2F706             JNZ     NO$COM
029F 7C                 MOV     A,H
02A0 FE52               CPI     'R'
02A2 C2F706             JNZ     NO$COM
02A5 3A6700             LDA     SPEC+2
02A8 FE4C               CPI     'L'
02AA C2F706             JNZ     NO$COM
02AD 3E02               MVI     A,2
02AF 32180A             STA     TYPE
02B2 C9                 RET
                        ;
                        ;*********************************
                        ;* OPEN FILE / PASSWORD ROUTINE
                        ;*********************************
                OPEN$FILE:
02B3 0E0F               MVI     C,OPENF                 ;ALSO CHECK IF PASSWORD
02B5 115C00             LXI     D,FCB
02B8 CD0500             CALL    BDOS                    ;OPEN THE FILE
02BB 32FD09             STA     KEEPA
02BE 7C                 MOV     A,H
02BF FE07               CPI     7                       ;IF PASSWORD STATUS EXISTS
02C1 CACD02             JZ      GET$PASSWD              ;THEN H=7
02C4 3AFD09             LDA     KEEPA
02C7 FEFF               CPI     255                     ;IF NOFILE THEN ACC.=FFH
02C9 CA4007             JZ      NO$FILE
02CC C9                 RET
                        ;
                GET$PASSWD:
02CD 3A160A             LDA     TPASSWD
02D0 FEFF               CPI     255                     ;CHECK IF USER HAS ALREADY
02D2 CA2C07             JZ      WRNG$PASS               ;TRIED PASSWORD
02D5 CD3F03             CALL    SPACE
02D8 11CB08             LXI     D,QUEST
02DB CD3C06             CALL    PRINT                   ;PRINT 'PASSWORD ?'
02DE CDF502             CALL    INPUT                   ;GET THE PASSWORD
02E1 32170A             STA     LEN                     ;LEN = LENGTH OF PASSWORD
02E4 CD4C03             CALL    CAP                     ;CAP THE PASSWORD
02E7 118200             LXI     D,BUF+2
02EA CD2A06             CALL    SET$DMA2                ;TELL WHERE PASSWORD CAN
02ED 3EFF               MVI     A,255                   ;BE FOUND
02EF 32160A             STA     TPASSWD                 ;SET TRIED PASSWORD FLAG
02F2 C3B302             JMP     OPEN$FILE
                        ;
                INPUT:
02F5 218200             LXI     H,BUF+2                 ;BUF+2 = BUFFER AREA FOR
```

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```
  281  02F8 3E00          MVI   A,0              ;PASSWORD
  282                INPUT2:                     ;ACC. IS THE COUNTER
  283  02FA E5            PUSH  H
  284  02FB 32FD09        STA   KEEPA            ;SAVE THE REGISTERS
  285  02FE 0E06          MVI   C,CONIN
  286  0300 1EFD          MVI   E,0FDH
  287  0302 CD0500        CALL  BDOS             ;GET RAW CHARACTER
  288  0305 FE18          CPI   CTRLX
  289  0307 CA3603        JZ    INPUT3           ;RESTART INPUT ROUTINE IF ^X
  290  030A FE03          CPI   CTRLC
  291  030C CAD107        JZ    STOP             ;STOP IF ^C
  292  030F FE0D          CPI   CR
  293  0311 CA3D03        JZ    INPUT4           ;RETURN IF <CR>
  294  0314 FE08          CPI   BAK
  295  0316 CA2B03        JZ    BACK$SPACE       ;JUMP IF DEL OR BAK
  296  0319 FE7F          CPI   RUB              ;JUMP IF RUB
  297  031B CA2B03        JZ    BACK$SPACE
  298  031E E1            POP   H
  299  031F 77            MOV   M,A              ;MOVE INTO MEMORY THE CHAR.
  300  0320 3AFD09        LDA   KEEPA            ;RESTORE THE COUNTER
  301  0323 23            INX   H                ;INC. MEMORY LOCATION
  302  0324 3C            INR   A                ;INC. COUNTER
  303  0325 FE08          CPI   8                ;CHECK IF 8 CHARS. READ
  304  0327 C2FA02        JNZ   INPUT2
  305  032A C9            RET
  306                     ;
  307                BACK$SPACE:                 ;BACK SPACE (^H)
  308  032B E1            POP   H                ;RESTORE BUFFER POINTER
  309  032C 3AFD09        LDA   KEEPA            ;RESTORE COUNTER
  310  032F 2B            DCX   H                ;SET MEMORY BACK 1
  311  0330 3D            DCR   A                ;SET COUNTER BACK 1
  312  0331 3620          MVI   M,' '            ;BLANK OUT THE UNWANTED
  313  0333 C3FA02        JMP   INPUT2           ;CHARACTER
  314                     ;
  315                INPUT3:                     ;CTRL - X (^X)
  316  0336 E1            POP   H                ;RESTORE BUFFER POINTER
  317  0337 CD3F03        CALL  SPACE            ;BLANK OUT THE BUFFER
  318  033A C3F502        JMP   INPUT            ;FOR PASSWORD AND START AGAIN
  319                     ;
  320                INPUT4:                     ;RESTORE STACK AND RETURN
  321  033D E1            POP   H                ;TO GETPASSWD ROUTINE
  322  033E C9            RET
  323                     ;
  324                SPACE:                      ;THIS ROUTINE BLANKS
  325  033F 3E08          MVI   A,8              ;OUT THE BUFFER THAT
  326  0341 218200        LXI   H,BUF+2          ;CONTAINS THE PASSWORD
  327                SPACE2: ;
  328  0344 3620          MVI   M,' '            ;MOVE INTO THE POINTER
  329  0346 23            INX   H                ;DO IT 8 TIMES
  330  0347 3D            DCR   A
  331  0348 C24403        JNZ   SPACE2
  332  034B C9            RET
  333                     ;
  334                CAP:                        ;THIS ROUTINE CHANGES
  335  034C 1608          MVI   D,8              ;THE'PASSWORD' TO UPPER-CASE
  336  034E 218200        LXI   H,BUF+2
```

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```
                CAP2:
0351 7E         MOV     A,M
0352 FE61       CPI     'a'             ;CHECK IF CHARACTER IS
0354 DA5F03     JC      SKIP            ;BETWEEN 'A' AND 'Z'
0357 FE7B       CPI     '{'             ;IF SO THEN CHANGE IT
0359 D25F03     JNC     SKIP            ;TO UPPERCASE BY SUBTRACTING
035C D620       SUI     20H             ;20 HEX
035E 77         MOV     M,A
                SKIP:
035F 23         INX     H
0360 15         DCR     D
0361 C25103     JNZ     CAP2
                ;
                DEL$CHAR:               ;THIS ROUTINE DELETES
0364 3A170A     LDA     LEN             ;THE CHARACTER AFTER
0367 C682       ADI     082H            ;THE PASSWORD BECAUSE
0369 32170A     STA     LEN             ;BDOS FUNCTION 10 ADDS
036C 2A170A     LHLD    LEN             ;AN EXTRA CHARACTER TO THE
036F 3620       MVI     M,' '           ;INPUT
0371 C9         RET
                ;
                ;*********************************
                ;* SERAIL NUMBER CHECK ROUTINES
                ;*********************************
                CHECK$SER:              ;THIS ROUTINE CHECKS TO SEE
0372 3A180A     LDA     TYPE            ;IF THE PROGRAM TO BE PATCHED
0375 FE01       CPI     1               ;IS A CP/M 3 PROGRAM
0377 CA9D03     JZ      COM$SERIAL
037A FE02       CPI     2
037C CAAF03     JZ      PRL$SERIAL
037F C3F706     JMP     NO$COM
                ;
                CHANGE$TYPE:
0382 3E02       MVI     A,2             ;THIS ROUTINE TELLS PATCH
                CHANGE$TYPE2:           ;TO TREAT THE CURRENT COM
0384 32FD09     STA     KEEPA           ;FILE IN THE FCB AS A PRL
0387 CD2706     CALL    SET$DMA         ;FILE SO IT WILL SEARCH THE
038A CD3006     CALL    READ$BUFF       ;THIRD RECORD INSTEAD OF
038D 3AFD09     LDA     KEEPA           ;THE FIRST
0390 3D         DCR     A
0391 C28403     JNZ     CHANGE$TYPE2
0394 CDC503     CALL    SERIAL
0397 3E02       MVI     A,2
0399 32180A     STA     TYPE
039C C9         RET
                ;
                COM$SERIAL:             ;CHECK FOR .COM SERIAL #
039D CD2706     CALL    SET$DMA
03A0 CD3006     CALL    READ$BUFF
03A3 3A530A     LDA     BUFF
03A6 FEC9       CPI     0C9H            ;CHECK IF A 'RET' STATEMENT
03A8 CA8203     JZ      CHANGE$TYPE     ;IF SO TREAT IT AS A PRL FILE
03AB CDC503     CALL    SERIAL
03AE C9         RET
                ;
                PRL$SERIAL:             ;CHECK FOR .PRL SERIAL #
```

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```
03AF 3E03           MVI     A,3                 ;COUNTER
                PRL$SERIAL2:
03B1 32FD09         STA     KEEPA               ;MUST READ IN THE 3RD
03B4 CD2706         CALL    SET$DMA             ;RECORD OF THE .PRL FILE
03B7 CD3006         CALL    READ$BUFF           ;INORDER TO CHECK FOR THE
03BA 3AFD09         LDA     KEEPA               ;SERIAL NUMBER AND RETREIVE
03BD 3D             DCR     A                   ;THE PATCH BIT MAP
03BE C2B103         JNZ     PRL$SERIAL2
03C1 CDC503         CALL    SERIAL
03C4 C9             RET
                    ;
                SERIAL:                         ;THIS ROUTINE CHECKS A CERTAIN
03C5 21CD0A         LXI     H,BUFF+122          ;MEMORY BLOCK AND SEARCHES 6
03C8 11330A         LXI     D,SER$TABLE
03CB 0605           MVI     B,5                 ;CERTAIN BYTES TO SEE IF IT IS
                SERIAL2:
03CD 1A             LDAX    D
03CE BE             CMP     M
03CF C21A07         JNZ     WRNG$SER            ;IT CHECKS THE LAST 6 BYTES
03D2 23             INX     H
03D3 13             INX     D
03D4 05             DCR     B
03D5 C2CD03         JNZ     SERIAL2
03D8 C9             RET
                    ;
                    ;*********************************
                    ;* BRANCHING ROUTINES
                    ;*********************************
                CHECK$RW:                       ;THIS ROUTINE CHECKS TO
03D9 3A210A         LDA     NUM                 ;SEE IF THE USER WANTS
03DC FE20           CPI     ' '                 ;TO 'WRITE' OR 'READ'
03DE C25D07         JNZ     NOT$NUM             ;A PATCH
03E1 2A1B0A         LHLD    NUMBER
03E4 7D             MOV     A,L
03E5 FE20           CPI     ' '
03E7 CAFA03         JZ      SET$READ
03EA FE31           CPI     '1'
03EC DA5D07         JC      NOT$NUM
03EF FE3A           CPI     ':'
03F1 D25D07         JNC     NOT$NUM
03F4 3E02           MVI     A,2
03F6 32190A         STA     RW                  ;SET THE'WRITE' FLAG
03F9 C9             RET
                    ;
                SET$READ:                       ;SET THE 'READ' FLAG
03FA 3E01           MVI     A,1
03FC 32190A         STA     RW
03FF C9             RET
                    ;
                BRANCH:                         ;BRANCH IF 'READ OR WRITE'
0400 CD4104         CALL    GET$PATCHBITS       ;GET BIT MAP PATCH
0403 3A190A         LDA     RW                  ;INTO ACTUAL NUMBERS
0406 FE01           CPI     1
0408 CA4E04         JZ      READ                ;IF '1' THEN 'READ'
040B FE02           CPI     2
040D CAC604         JZ      WRITE               ;IF '2' THEN 'WRITE'
```

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```
449  0410 C3D107          JMP     STOP
450                       ;
451                       ;*********************************
452                       ;* MULTIPLY ROUTINE
453                       ;*********************************
454                  GET$NUM:                          ;GET INPUTED NUMBER
455  0413 2A1B0A          LHLD    NUMBER               ;BY USER AND TRANSFER IT
456  0416 7C              MOV     A,H                  ;INTO A NON ASCII NUMBER
457  0417 FE20            CPI     ' '
458  0419 CA3A04          JZ      SET$VAL
459  041C D630            SUI     030H                 ;CHANGE INTO ACTUAL NUMBER
460  041E 32230A          STA     NUMTWO               ;STORE IT
461  0421 7D              MOV     A,L
462  0422 D630            SUI     030H                 ;CHANGE INTO ACTUAL NUMBER
463                       ;
464                  MULTIPLY:
465  0424 0609            MVI     B,9                  ;TIMES TO ADD NUMBER
466  0426 5F              MOV     E,A
467                  MULTIPLY2:
468  0427 83              ADD     E                    ;A=A+E
469  0428 05              DCR     B
470  0429 C22704          JNZ     MULTIPLY2
471  042C 5F              MOV     E,A                  ;E=A*10
472  042D 3A230A          LDA     NUMTWO
473  0430 83              ADD     E
474  0431 32240A          STA     VAL
475  0434 FE21            CPI     33
476  0436 D25D07          JNC     NOT$NUM
477  0439 C9              RET
478                       ;
479                  SET$VAL:                          ;IF INPUTED PATCH NUMBER IS
480  043A 7D              MOV     A,L                  ;ONLY ONE CHARACTER THEN
481  043B D630            SUI     030H                 ;CHANGE IT INTO A 'NO ASCII'
482  043D 32240A          STA     VAL                  ;NUMBER
483  0440 C9              RET
484                       ;
485                  GET$PATCHBITS:                    ;GET THE 4 BYTES IN THE BIT MAP
486  0441 2AC90A          LHLD    BUFF+118             ;AND SAVE THEM FOR LATER
487  0444 221D0A          SHLD    PATCH1
488  0447 2ACB0A          LHLD    BUFF+120
489  044A 221F0A          SHLD    PATCH2
490  044D C9              RET
491                       ;
492                       ;*********************************
493                       ;* READ ROUTINE
494                       ;*********************************
495                  READ:                             ;THIS ROUTINE CHECKS THE PATCH
496  044E 113F09          LXI     D,CRPATC$MESS        ;BIT MAP AND DISPLAYS ANY
497  0451 CD3C06          CALL    PRINT                ;CURRENT PATCHES
498  0454 CD8D06          CALL    DISP$FILE            ;DISPLAY THE FILE
499  0457 11F709          LXI     D,COL$CR$LF$SP
500  045A CD3C06          CALL    PRINT
501  045D CDAD04          CALL    CHECK$BITS           ;CHECK IF ANY PATCHES EXIST
502  0460 1E00            MVI     E,0                  ;HEX TOTAL COUNTER
503  0462 2A1F0A          LHLD    PATCH2
504  0465 7C              MOV     A,H
```

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```
  505  0466 CD8104          CALL    ROT                 ;SEE IF ANY 1-8
  506  0469 2A1F0A          LHLD    PATCH2
  507  046C 7D              MOV     A,L
  508  046D CD8104          CALL    ROT                 ;SEE IF ANY 9-16
  509  0470 2A1D0A          LHLD    PATCH1
  510  0473 7C              MOV     A,H
  511  0474 CD8104          CALL    ROT                 ;SEE IF ANY 17-24
  512  0477 2A1D0A          LHLD    PATCH1
  513  047A 7D              MOV     A,L
  514  047B CD8104          CALL    ROT                 ;SEE IF ANY 25-32
  515  047E C3D107          JMP     STOP
  516                       ;
  517                  ROT:
  518  0481 1608            MVI     D,8                 ;LOOP COUNTER (1-8)
  519  0483 32FD09          STA     KEEPA
  520  0486 3E00            MVI     A,0
  521                  ROT2:
  522  0488 3A220A          LDA     CT                  ;DECIMAL COUNTER
  523  048B C601            ADI     1
  524  048D 27              DAA                         ;ADD 1 (DECIMAL)
  525  048E 32220A          STA     CT
  526  0491 1C              INR     E
  527  0492 7B              MOV     A,E
  528  0493 32FE09          STA     KEEPE               ;E IS THE HEX COUNTER
  529  0496 7A              MOV     A,D
  530  0497 32FF09          STA     KEEPD
  531  049A 3AFD09          LDA     KEEPA
  532  049D 0F              RRC                         ;ROTATE THE BYTE
  533  049E 32FD09          STA     KEEPA
  534  04A1 DCBB06          CC      DISP$CT             ;CALL ROUTINE IF BIT IS ON
  535  04A4 3AFF09          LDA     KEEPD
  536  04A7 57              MOV     D,A
  537  04A8 15              DCR     D                   ;CHECK IF LOOP IS DONE
  538  04A9 C8              RZ
  539  04AA C38804          JMP     ROT2
  540                       ;
  541                  CHECK$BITS:
  542  04AD 2A1F0A          LHLD    PATCH2              ;THIS ROUTINE CHECKS THE
  543  04B0 7C              MOV     A,H                 ;PATCH BIT MAP AREA TO SEE
  544  04B1 FE00            CPI     0                   ;IF ANY OF THE BYTES HAVE
  545  04B3 C0              RNZ                         ;A BIT THAT IS ON
  546  04B4 7D              MOV     A,L
  547  04B5 FE00            CPI     0
  548  04B7 C0              RNZ
  549  04B8 2A1D0A          LHLD    PATCH1
  550  04BB 7C              MOV     A,H
  551  04BC FE00            CPI     0
  552  04BE C0              RNZ
  553  04BF 7D              MOV     A,L
  554  04C0 FE00            CPI     0
  555  04C2 CA1407          JZ      NO$PATCHES          ;JUMP IF NO BITS ARE ON
  556  04C5 C9              RET
  557                       ;
  558                       ;*********************************
  559                       ;* WRITE ROUTINE
  560                       ;*********************************
```

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```
561                     WRITE:
562   04C6 CDD704               CALL    CHECK$SAME          ;CHECK TO SEE IF THE INPUTED
563   04C9 3A1A0A               LDA     HPATCH              ;NUMBER BY THE USER
564   04CC 5F                   MOV     E,A                 ;ALREADY EXISTS FOR THE FILE
565   04CD 3A240A               LDA     VAL
566   04D0 BB                   CMP     E
567   04D1 DC6405               CC      LESSER
568   04D4 C30F05               JMP     GREATER
569                             ;
570                     CHECK$SAME:
571   04D7 3A240A               LDA     VAL                 ;THIS ROUTINE TAKES THE INPUTED
572   04DA 47                   MOV     B,A                 ;NUMBER AND COMPARES IT
573   04DB 1E00                 MVI     E,0                 ;TO AN INCREMENTING NUMBER
574   04DD 2A1F0A               LHLD    PATCH2              ;EVERY TIME A BIT IS ON
575   04E0 7C                   MOV     A,H
576   04E1 CDF404               CALL    ROTATE
577   04E4 7D                   MOV     A,L
578   04E5 CDF404               CALL    ROTATE
579   04EB 2A1D0A               LHLD    PATCH1
580   04EB 7C                   MOV     A,H
581   04EC CDF404               CALL    ROTATE
582   04EF 7D                   MOV     A,L
583   04F0 CDF404               CALL    ROTATE
584   04F3 C9                   RET
585                             ;
586                     ROTATE:
587   04F4 1608                 MVI     D,8                 ;COUNTER TO ROTATE EIGHT TIMES
588                     ROTATE2:
589   04F6 1C                   INR     E
590   04F7 0F                   RRC
591   04F8 32FD09               STA     KEEPA
592   04FB DC0605               CC      COMPARE             ;IF BIT IS ON THEN CHECK IF
593   04FE 3AFD09               LDA     KEEPA               ;THE COUNTER EQUALS THE INPUTED
594   0501 15                   DCR     D                   ;NUMBER BY THE USER
595   0502 C2F604               JNZ     ROTATE2
596   0505 C9                   RET
597                             ;
598                     COMPARE:
599   0506 7B                   MOV     A,E
600   0507 321A0A               STA     HPATCH              ;STORE THE CURRENT HIGEST PATCH
601   050A B8                   CMP     B                   ;FOUND FOR LATER USE
602   050B CAE405               JZ      ALREADY
603   050E C9                   RET
604                             ;
605                     GREATER:                            ;THIS ROUTINE DISPLAYS THE
606   050F 11DE08               LXI     D,INSTL$MESS        ;USER'S INPUTED PATCH NUMBER
607   0512 CD7806               CALL    DISP$NUM            ;DISPLAY INPUTED NUMBER
608   0515 118609               LXI     D,HAS$MESS
609   0518 CD3C06               CALL    PRINT
610   051B 11C009               LXI     D,BETW$MESS
611   051E CD3C06               CALL    PRINT
612   0521 CD8D06               CALL    DISP$FILE           ;DISPLAY THE FILE IN THE 'FCB'
613   0524 1E20                 MVI     E,' '
614   0526 CD4306               CALL    PBYTE2
615   0529 1E3F                 MVI     E,'?'               ;MAKE IT A QUESTION
616   052B CD4306               CALL    PBYTE2
```

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```
 617  052E 1E20          MVI   E,' '
 618  0530 CD4306        CALL  PBYTE2
 619  0533 0E0A          MVI   C,RSTRING
 620  0535 3E04          MVI   A,4              ;LENGTH OF INPUT
 621  0537 32250A        STA   ANSWER           ;BUFFER
 622  053A 11250A        LXI   D,ANSWER         ;PONT 'DE' TO BUFFER
 623  053D CD0500        CALL  BDOS             ;WAIT FOR INPUT
 624  0540 3A270A        LDA   ANSWER+2
 625  0543 FE59          CPI   'Y'
 626  0545 CA5005        JZ    GREATER2         ;WITH THE PATCH
 627  0548 FE79          CPI   'y'
 628  054A CA5005        JZ    GREATER2
 629  054D C37407        JMP   QUIT$PTCH
 630                GREATER2:
 631  0550 CD7A05        CALL  PLC$PATCH        ;PLACE THE PATCH IN THE BUFFER
 632  0553 CDF605        CALL  WRIT$PTCH        ;WRITE THE PATCH INTO THE FILE
 633  0556 0E10          MVI   C,CLOSEF
 634  0558 115C00        LXI   D,FCB
 635  055B CD0500        CALL  BDOS             ;CLOSE THE FILE
 636  055E 11C609        LXI   D,OK$MESS        ;TELL USER THAT THE PATCH
 637  0561 C3CB07        JMP   PR$STOP          ;IS FINISHED
 638                    ;
 639                LESSER:
 640  0564 115609        LXI   D,LESS$MESS      ;THIS ROUTINE CAUTIONS THE USER
 641  0567 CD7806        CALL  DISP$NUM         ;THAT PATCHES GREATER THAN
 642  056A 117709        LXI   D,LESS2$MESS
 643  056D CD3C06        CALL  PRINT
 644  0570 CD8D06        CALL  DISP$FILE        ;DISPLAY THE FILE
 645  0573 11F009        LXI   D,CR$LF
 646  0576 CD3C06        CALL  PRINT
 647  0579 C9            RET
 648                    ;
 649                PLC$PATCH:                ;THIS ROUTINE CHECKS TO SEE
 650  057A 3A240A        LDA   VAL              ;WHAT BYTE TO ALTER
 651  057D FE09          CPI   9
 652  057F DAB605        JC    BYTE3            ;INPUTED # IS 1-8
 653  0582 FE18          CPI   24
 654  0584 D28F05        JNC   BYTE0            ;INPUTED # IS 25-32
 655  0587 FE11          CPI   17
 656  0589 DAA905        JC    BYTE2            ;INPUTED # IS 9-16
 657  058C C39C05        JMP   BYTE1            ;INPUTED # IS 17-24
 658                    ;
 659                BYTE0:                    ;THIS ROUTINE IS DONE
 660  058F 3A240A        LDA   VAL              ;IF THE INPUT WAS BETWEEN
 661  0592 D619          SUI   25               ;25-32
 662  0594 32290A        STA   BIT$POS
 663  0597 3E00          MVI   A,0
 664  0599 C3C205        JMP   TABLE$LOAD
 665                    ;
 666                BYTE1:                    ;THIS ROUTINE IS DONE
 667  059C 3A240A        LDA   VAL              ;IF THE INPUT WAS BETWEEN
 668  059F D611          SUI   17               ;17-24
 669  05A1 32290A        STA   BIT$POS
 670  05A4 3E01          MVI   A,1
 671  05A6 C3C205        JMP   TABLE$LOAD
 672                    ;
```

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```
                BYTE2:                          ;THIS ROUTINE IS DONE
05A9 3A240A             LDA     VAL             ;IF THE INPUT WAS BETWEEN
05AC D609               SUI     9               ;9-16
05AE 32290A             STA     BIT$POS
05B1 3E02               MVI     A,2
05B3 C3C205             JMP     TABLE$LOAD
                        ;
                BYTE3:                          ;THIS ROUTINE IS DONE
05B6 3A240A             LDA     VAL             ;IF THE INPUT WAS BETWEEN
05B9 3D                 DCR     A               ;1-8
05BA 32290A             STA     BIT$POS
05BD 3E03               MVI     A,3
05BF C3C205             JMP     TABLE$LOAD
                        ;
                TABLE$LOAD:
05C2 322A0A             STA     BYTE$POS
05C5 21C90A             LXI     H,BUFF+118      ;PATCH BIT MAP
05C8 0600               MVI     B,0
05CA 3A2A0A             LDA     BYTE$POS        ;PATCH AREA
05CD 4F                 MOV     C,A
05CE 09                 DAD     B               ;'HL' = LOCATION TO GET BYTE
05CF 222B0A             SHLD    PATCH$POS       ;PLACE TO GET/PUT PATCH
05D2 21390A             LXI     H,TABLE
05D5 0600               MVI     B,0
05D7 3A290A             LDA     BIT$POS         ;BIT POSITION (0-7)
05DA 4F                 MOV     C,A
05DB 09                 DAD     B
05DC 46                 MOV     B,M             ;'HL' CONTAINS THE BYTE TO ALTER
05DD 2A2B0A             LHLD    PATCH$POS
05E0 7E                 MOV     A,M
05E1 B0                 ORA     B               ;TURN THE BIT ON
05E2 77                 MOV     M,A             ;SAVE IT
05E3 C9                 RET
                        ;
                ALREADY:                        ;THIS ROUTINE TELLS THE USER
05E4 11B209             LXI     D,ALREAD$MESS2  ;THAT THE INPUTED PATCH NUMBER
05E7 CD7806             CALL    DISP$NUM        ;HAS ALREADY BEEN INSTALLED
05EA 119D09             LXI     D,ALREAD$MESS
05ED CD3C06             CALL    PRINT
05F0 CD8D06             CALL    DISP$FILE
05F3 C3D107             JMP     STOP
                        ;
                WRIT$PTCH:                      ;THIS ROUTINE BRANCHES DEPENDING
05F6 3A180A             LDA     TYPE            ;WHAT TYPE OF FILE TYPE THE FILE
05F9 FE01               CPI     1               ;HAS SO IT CAN WRITE
05FB CA0106             JZ      COM$PATCH       ;CORRECTLY
05FE C30606             JMP     PRL$PATCH
                        ;
                COM$PATCH:                      ;TELL THAT THE RECORD POSTION
0601 3E00               MVI     A,0             ;IS THE FIRST RECORD
0603 C30B06             JMP     WRITE$RAN
                        ;
                PRL$PATCH:
0606 3E02               MVI     A,2             ;TELL THAT THE RECORD POSTION
0608 C30B06             JMP     WRITE$RAN       ;IS THE THIRD RECORD
                        ;
```

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729                     WRITE$RAN:                      ;THIS ROUTINE WRITES A RECORD
730   060B 327D00               STA     FCB+33
731   060E 210000               LXI     H,00
732   0611 227E00               SHLD    FCB+34
733   0614 0E22                 MVI     C,WRITERF       ;TO THE FILE IN THE FCB
734   0616 115C00               LXI     D,FCB           ;AT THE RECORD POSITION FOUND
735   0619 CD0500               CALL    BDOS            ;AT FCB+33
736   061C FE00                 CPI     0               ;AND THE DATA TO BE WRITTEN
737   061E C8                   RZ                      ;IS FOUND FROM THE BUFF+128(80H)
738   061F FEFF                 CPI     255
739   0621 CABD07               JZ      PHYS$ERR        ;JUMP IF PHYSICAL ERROR
740   0624 C37407               JMP     QUIT$PTCH
741                             ;
742                             ;*********************************
743                             ;* SUBROUTINES
744                             ;*********************************
745                     SET$DMA:
746   0627 11530A               LXI     D,BUFF          ;THIS ROUTINE SET THE DMA
747                     SET$DMA2:
748   062A 0E1A                 MVI     C,DMAF
749   062C CD0500               CALL    BDOS
750   062F C9                   RET
751                             ;
752                     READ$BUFF:                      ;THIS ROUTINE READS A BLOCK
753   0630 0E14                 MVI     C,READF         ;FROM A FILE AND PLACES IT INTO
754   0632 115C00               LXI     D,FCB           ;MEMORY
755   0635 CD0500               CALL    BDOS
756   0638 C9                   RET
757                             ;
758                     PERROR:                         ;PRINT 'ERROR :'
759   0639 111A08               LXI     D,ERR$MESS
760                             ;
761                     PRINT:                          ;THIS ROUTINE PRINTS A STRING
762   063C 0E09                 MVI     C,PSTRING       ;POINTED BY REGISTERS 'DE'
763   063E CD0500               CALL    BDOS            ;UNTIL A '$' IS FOUND
764   0641 C9                   RET
765                             ;
766                     PBYTE:                          ;THIS ROUTINE PRINTS THE
767   0642 5F                   MOV     E,A             ;'ASCII' CHARACTER FOUND
768                     PBYTE2:                         ;IN REGISTER 'E'
769   0643 0E02                 MVI     C,CONOUT
770   0645 CD0500               CALL    BDOS
771   0648 C9                   RET
772                             ;
773                     DISPLAYIT:                      ;THIS ROUTINE DISPLAYS
774   0649 22000A               SHLD    KEEPH           ;THE INVALID PATCH NUMBER
775   064C 32FD09               STA     KEEPA           ;THAT WAS INPUTED
776   064F 7E                   MOV     A,M
777   0650 FE20                 CPI     ' '
778   0652 C8                   RZ
779   0653 CD4206               CALL    PBYTE
780   0656 2A000A               LHLD    KEEPH
781   0659 3AFD09               LDA     KEEPA
782   065C 23                   INX     H
783   065D 3D                   DCR     A
784   065E C24906               JNZ     DISPLAYIT
```

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```
0661 C8              RZ
                     ;
                DISPLAYIT2:                     ;THIS ROUTINE DISPLAYS
0662 22000A          SHLD    KEEPH              ;THE INVALID FILESPEC
0665 32FD09          STA     KEEPA              ;WHEN AN ERROR OCCURS
0668 5E              MOV     E,M
0669 CD4306          CALL    PBYTE2
066C 2A000A          LHLD    KEEPH
066F 3AFD09          LDA     KEEPA
0672 23              INX     H
0673 3D              DCR     A
0674 C26206          JNZ     DISPLAYIT2
0677 C9              RET
                     ;
                DISP$NUM:
067B CD3C06          CALL    PRINT              ;PRINT STRING POINTED EARLIER
067B 2A1B0A          LHLD    NUMBER
067E 7D              MOV     A,L
067F CD4206          CALL    PBYTE
0682 2A1B0A          LHLD    NUMBER
0685 7C              MOV     A,H
0686 FE20            CPI     ' '
0688 C8              RZ
0689 CD4206          CALL    PBYTE
068C C9              RET
                     ;
                DISP$FILE:                      ;THIS ROUTINE DISPLAYS THE FILE
068D 215D00          LXI     H,FCB+1            ;NAME AND SPEC. FOUND IN THE FCB
0690 3E0B            MVI     A,8                ;(5DHEX)
0692 CD4906          CALL    DISPLAYIT
0695 1E2E            MVI     E,'.'
0697 CD4306          CALL    PBYTE2
069A 216500          LXI     H,FCB+9
069D 3E03            MVI     A,3
069F CD4906          CALL    DISPLAYIT
06A2 C9              RET
                     ;
                DISP$DRV:
06A3 CD3C06          CALL    PRINT
06A6 3A5C00          LDA     FCB                ;GET THE CURRENT LOGGED ON DRIVE
06A9 FE00            CPI     0                  ;SEE IF IT IS DRIVE 'A'
06AB CCB906          CZ      CHNGDRV            ;IF SO CHANGE THE NUMBER
06AE C640            ADI     040H               ;MAKE THE NUMBER ASCII
06B0 CD4206          CALL    PBYTE              ;DISPLAY IT
06B3 1E3A            MVI     E,':'
06B5 CD4306          CALL    PBYTE2
06B8 C9              RET
                     ;
                CHNGDRV:
06B9 3C              INR     A                  ;THIS ROUTINE ADDS 1 TO THE DRIVE
06BA C9              RET                        ;NUMBER SO IT CAN BE DISPLAYED
                     ;
                DISP$CT:                        ;THIS ROUTINE IS CALLED
06BB 3AFE09          LDA     KEEPE              ;EVERY TIME A BIT IS FOUND
06BE FE0A            CPI     10                 ;ON IN THE 'READ' ROUTINE
06C0 D2CE06          JNC     DISP$CT2           ;AND DISPLAYS THE CURRENT
```

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```
 841  06C3 C630          ADI   030H          ;PATCH ACCORDING TO WHAT
 842  06C5 CD4206        CALL  PBYTE         ;BIT IS ON
 843  06C8 1E20          MVI   E,' '
 844  06CA CD4306        CALL  PBYTE2
 845  06CD C9            RET
 846                DISP$CT2:
 847  06CE 3A220A        LDA   CT            ;CURRENT DECIMAL COUNT
 848  06D1 E60F          ANI   0FH           ;GET RID OF THE HIGH NIBBLE
 849  06D3 32280A        STA   LOWDIG        ;STORE THE LOWER
 850  06D6 3A220A        LDA   CT
 851  06D9 E6F0          ANI   0F0H          ;GET RID OF THE LOW NIBBLE
 852  06DB 0F            RRC
 853  06DC 0F            RRC
 854  06DD 0F            RRC
 855  06DE 0F            RRC                 ;ROTATE FOUR TIMES
 856  06DF C630          ADI   030H          ;MAKE IT AN ASCII CHARACTER
 857  06E1 FE30          CPI   '0'           ;IF CHARACTER =0 THEN SKIP
 858  06E3 CAE906        JZ    DISP$CT3      ;THE DISPLAY ROUTINE
 859  06E6 CD4206        CALL  PBYTE         ;PRINT THE BYTE
 860                DISP$CT3:
 861  06E9 3A280A        LDA   LOWDIG        ;GET THE SECOND DIGIT
 862  06EC C630          ADI   030H          ;MAKE IT AN ASCII CHARACTER
 863  06EE CD4206        CALL  PBYTE
 864  06F1 1E20          MVI   E,' '         ;PRINT A SPACE
 865  06F3 CD4306        CALL  PBYTE2
 866  06F6 C9            RET
 867                    ;
 868                NO$COM:                 ;THIS ROUTINE TELLS THE USER
 869  06F7 3A180A        LDA   TYPE          ;THAT THE FILE WAS NOT THE
 870  06FA FE03          CPI   3             ;PROPER FILE TYPE AND DISPLAYS
 871  06FC D8            RC                  ;THE FILE TYPE THE USER
 872  06FD CD3906        CALL  PERROR
 873  0700 113A08        LXI   D,NCOM$MESS   ;INPUTED
 874  0703 CD3C06        CALL  PRINT
 875  0706 216500        LXI   H,SPEC
 876  0709 3E03          MVI   A,3
 877  070B CD6206        CALL  DISPLAYIT2
 878  070E 110409        LXI   D,POS$TYPE
 879  0711 C3CB07        JMP   PR$STOP
 880                    ;
 881                NO$PATCHES:             ;THIS ROUTINE TELLS THE USER
 882  0714 11BB09        LXI   D,NONE$MESS   ;THAT NO PATCHES HAVE BEEN
 883  0717 C3CB07        JMP   PR$STOP       ;MADE FOR THE FILE
 884                    ;
 885                WRNG$SER:               ;THIS ROUTINE TELLS THE USER
 886  071A CD3906        CALL  PERROR
 887  071D 114F08        LXI   D,SER$MESS    ;THAT THE SERIAL # DOES NOT
 888  0720 C3CB07        JMP   PR$STOP       ;MATCH
 889                    ;
 890                WRNGVER:                ;THIS ROUTINE INFORMS THE USER
 891  0723 CD3906        CALL  PERROR        ;THAT THE WRONG VERSION OF CP/M
 892  0726 112408        LXI   D,VER$MESS    ;IS BEING USED
 893  0729 C3CB07        JMP   PR$STOP
 894                    ;
 895                WRNG$PASS:              ;THIS ROUTINE TELLS THE USER
 896  072C CD3906        CALL  PERROR
```

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```
                        LXI     D,PASS$MESS             ;THAT THE INPUTED PASSWORD
                        CALL    PRINT                   ;WAS FALSE
                        LXI     H,BUF+2
                        MVI     A,8
                        CALL    DISPLAYIT2
                        JMP     STOP
                        ;
                NO$FILE:                                ;THIS ROUTINE TELLS THE USER
                        CALL    PERROR
                        LXI     D,NF$MESS               ;THAT THE FILE WAS NOT FOUND
                        CALL    PRINT                   ;AND IT GIVES THE NAME OF THE
                        LDA     FCB+1                   ;FILE
                        CPI     ' '
                        JZ      STOP
                        CALL    DISP$FILE
                        LXI     D,DRV$MESS
                        CALL    DISP$DRV
                        JMP     STOP
                        ;
                NOT$NUM:                                ;THIS ROUTINE TELLS THE USER
                        CALL    PERROR
                        LXI     D,NONUM$MESS            ;THAT THE INPUTED NUMBER TO PATCH
                        CALL    PRINT                   ;IS ILLEGAL
                        LXI     H,06DH
                        MVI     A,5
                        CALL    DISPLAYIT
                        LXI     D,POS$NUM
                        JMP     PR$STOP
                        ;
                QUIT$PTCH:                              ;THIS ROUTINE TELLS THE USER
                        LXI     D,NOT$PTCHD             ;THAT THE PATCH WAS NOT INSTALLED
                        JMP     PR$STOP
                        ;
                DISK$RO:                                ;THIS ROUTINE TELLS THE USER
                        LXI     D,CR$LF                 ;THAT THE DISK IS READ/ONLY
                        CALL    PRINT
                        CALL    PERROR
                        LXI     D,DRIVE$MESS
                        CALL    DISP$DRV
                        LXI     D,RO$MESS
                        CALL    PRINT
                        JMP     STOP
                        ;
                FILE$RO:                                ;THIS ROUTINE TELLS THE USER THAT
                        LXI     D,CR$LF                 ;THE FILE HE/SHE IS TRYING TO
                        CALL    PRINT                   ;PATCH IS READ/ONLY
                        CALL    PERROR
                        CALL    DISP$FILE
                        LXI     D,RO$MESS
                        JMP     PR$STOP
                        ;
                BAD$DRIVE:
                        CALL    PERROR
                        LXI     D,BADDRV$MESS
                        CALL    PRINT
                        LDA     FCB
```

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```
 953  07B0 C640            ADI     040H
 954  07B2 CD4206          CALL    PBYTE
 955  07B5 1E3A            MVI     E,':'
 956  07B7 CD4306          CALL    PBYTE2
 957  07BA C3D107          JMP     STOP
 958                       ;
 959                  PHYS$ERR:                       ;THIS ROUTINE TELLS THE USER
 960  07BD 7C              MOV     A,H                ;THAT WHEN PERFORMING THE
 961  07BE FE02            CPI     2                  ;WRITE ROUTINE A PERMANENT ERROR
 962  07C0 CA7A07          JZ      DISK$RO            ;WAS DETECTED
 963  07C3 FE03            CPI     3
 964  07C5 CA9207          JZ      FILE$RO
 965  07C8 C37407          JMP     QUIT$PTCH
 966                       ;
 967                  PR$STOP:
 968  07CB CD3C06          CALL    PRINT
 969  07CE C3D107          JMP     STOP
 970                       ;
 971                  STOP:                           ;THIS ROUTINE ENDS THE PROGRAM
 972  07D1 11F309          LXI     D,CR$LF$LF
 973  07D4 CD3C06          CALL    PRINT
 974  07D7 0E00            MVI     C,RETURN
 975  07D9 CD0500          CALL    BDOS               ;RETURN TO CCP
 976                       ;
 977                       ;*********************************
 978                       ;* PROGRAM CALLING ROUTINE
 979                       ;*********************************
 980                  BEGIN:
 981  07DC 31510A          LXI     SP,STACK           ;SET STACK TO 'STACK'
 982  07DF CD8301          CALL    INIT               ;INITIALIZE
 983  07E2 CDAE01          CALL    CHECK$FILE         ;CHECK IF FILE IN THE FCB
 984  07E5 CD5502          CALL    CHECK$SPEC         ;CHECK IF .COM INPLIED
 985  07E8 CD7402          CALL    CHECK$TYPE         ;CHECK FILE TYPE
 986                  BEGIN2:
 987  07EB CDD903          CALL    CHECK$RW           ;CHECK IF 'READ' OR 'WRITE'
 988  07EE CD1304          CALL    GET$NUM            ;GET/CHANGE INPUTED NUMBER
 989  07F1 CDB302          CALL    OPEN$FILE          ;OPEN THE FILE
 990  07F4 CD7203          CALL    CHECK$SER          ;CHECK SERIAL NUMBER
 991  07F7 CD0004          CALL    BRANCH             ;BRANCH TOO READ OR WRITE
 992  07FA CDD107          CALL    STOP               ;STOP PROGRAM
 993                       ;
 994                       ;*********************************
 995                       ;* CONSOLE MESSAGES TO USER
 996                       ;*********************************
 997                       ;* INTRO MESSAGE *
 998  07FD 0D0A43502FINTRO$MESS:    DB CR,LF,'CP/M 3 PATCH - Version 3.0$'
 999                       ;* ERROR MESSAGES *
1000  081A 0D0A455252ERR$MESS:      DB CR,LF,'ERROR: $'
1001  0824 5041544348VER$MESS:      DB 'PATCH requires CP/M 3$'
1002  083A 496E76616CNCOM$MESS:     DB 'Invalid file type: .$'
1003  084F 5365726961SER$MESS:      DB 'Serial number mismatch$'
1004  0866 4E6F206669NF$MESS:       DB 'No file: $'
1005  0870 46616C7365PASS$MESS:     DB 'False password: $'
1006  0881 496E76616CNONUM$MESS:    DB 'Invalid patch number: $'
1007  0898 4472697665DRIVE$MESS:    DB 'Drive $'
1008  089F 2069732052RO$MESS:       DB ' is R/O$'
```

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```
1009  08A7 206F6E20243DRV$MESS:    DB ' on $'
1010  08AC 496C6C6567BADDRV$MESS:  DB 'Illegal drive: $'
1011                       ;* QUESTIONS *
1012  08BC 0D0A456E74FILE$PRMT$MESS: DB CR,LF,'Enter File: $'
1013  08CB 0D0A456E74QUEST:        DB CR,LF,'Enter Password: $'
1014  08DE 0D0A446F20INSTL$MESS:   DB CR,LF,'Do you want to indicate that patch $'
1015                       ;* STATUS MESSAGES *
1016  0904 0D0A56616CPOS$TYPE:     DB CR,LF,'Valid file types: COM or PRL$'
1017  0923 0D0A56616CPOS$NUM:      DB CR,LF,'Valid patch numbers: 1-32$'
1018  093F 0D0A437572CRPATC$MESS:  DB CR,LF,'Current patches for $'
1019  0956 0D0A57415ZLESS$MESS:    DB CR,LF,'WARNING: Patches greater than $'
1020  0977 0D0A202065LESS2$MESS:   DB CR,LF,'  exist for $'
1021  0986 0D0A202068HAS$MESS:     DB CR,LF,'  has been installed$'
1022  099D 20616C7265ALREAD$MESS:  DB ' already exists for $'
1023  09B2 0D0A506174ALREAD$MESS2: DB CR,LF,'Patch $'
1024  09BB 4E6F6E6524NONE$MESS:    DB 'None$'
1025  09C0 20666F7220IETW$MESS:    DB ' for $'
1026  09C6 0D0A0A5061OK$MESS:      DB CR,LF,LF,'Patch installed$'
1027  09D9 0D0A0A5061NOT$PTCHD:    DB CR,LF,LF,'Patch not installed$'
1028  09F0 0D0A24    CR$LF:        DB CR,LF,'$'
1029  09F3 0D0A0A24  CR$LF$LF:     DB CR,LF,LF,'$'
1030  09F7 3A0D0A2020COL$CR$LF$SP: DB ':',CR,LF,'  $'
1031                       ;
1032                       ;*********************************
1033                       ;* VARIABLE AND DATA STORAGE AREA
1034                       ;*********************************
1035  09FD 00        KEEPA:        DB 0                    ;STORAGE FOR 'ACC'
1036  09FE 00        KEEPE:        DB 0                    ;STORAGE FOR 'E'
1037  09FF 00        KEEPD:        DB 0                    ;STORAGE FOR 'D'
1038  0A00 0000      KEEPH:        DW 0                    ;STORAGE FOR 'HL'
1039  0A02 2020202020FILE$BUFF:    DB 32,32,32,32,32,32    ;FILE BUFFER FOR DEFAULT
1040  0A08 2020202020              DB 32,32,32,32,32,32
1041  0A0E 2020202020              DB 32,32,32,32,32,32,32,32
1042  0A16 00        TPASSWD:      DB 0                    ;'TRIED PASSWORD' FLAG
1043  0A17 00        LEN:          DB 0                    ;LENGTH OF PASSWORD INPUT
1044  0A18 FF        TYPE:         DB 255                  ;FILE TYPE (.COM,. PRL OR .SPR)
1045  0A19 00        RW:           DB 0                    ;'READ/WRITE' FLAG
1046  0A1A 00        HPATCH:       DB 0                    ;HIGHEST PATCH
1047  0A1B 0000      NUMBER:       DW 00                   ;INPUTED (ASCII) NUMBER
1048  0A1D 0000      PATCH1:       DW 00                   ;'PATCH' BIT MAP STORAGE AREA
1049  0A1F 0000      PATCH2:       DW 00                   ;'PATCH' BIT MAP STORAGE AREA
1050  0A21 00        NUM:          DB 0                    ;THIRD NUMBER OF INPUT BY USER
1051  0A22 00        CT:           DB 0                    ;ACTUAL 'PATCHES' AFTER ROTATE (DEC)
1052  0A23 00        NUMTWO:       DB 0                    ;INPUT # -30H
1053  0A24 00        VAL:          DB 0                    ;ACTUAL INPUT VALUE AFTER MULTIPLY
1054  0A25           ANSWER:       DS 3                    ;STORAGE FOR INPUT TO QUESTION
1055  0A28           LOWDIG:       DS 1                    ;STORAGE FOR LOWER DIGIT TO DISPLAY
1056  0A29 00        BIT$POS:      DB 0                    ;POSITION OF BIT (0-7)
1057  0A2A 00        BYTE$POS:     DB 0                    ;POSTION OF BYTE (0-3)
1058  0A2B 0000      PATCH$POS:    DW 0                    ;HOLDS ADDRESS OF PATCH BYTE
1059  0A2D 434F4D    COM$TABLE:    DB 'COM'                ;THESE TABLES ARE USED TO
1060  0A30 50524C    PRL$TABLE:    DB 'PRL'                ;  COMPARE FILE TYPES IN
1061  0A33 3635343332SER$TABLE:    DB '654321'             ;THIS TABLE IS FOR SERIAL CHECKER
1062  0A39 0102040810TABLE:        DB 1,2,4,8,16,32,64,128 ;THIS TABLE IS FOR BIT MANIPULATION
1063  0A41                         DS 16                   ;STACK AREA
1064               STACK:
```

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```
1065  0A51                    DS 2
1066  0A53          BUFF:     DS 128          ;BUFFER (HOLDS ONE RECORD;128 BYTES)
```

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ALREADMESS 099D 710 1022#
ALREADMES2 09B2 708 1023#
ALREADY 05E4 602 707#
ANSWER 0A25 621 622 624 1054#
BACKSPACE 032B 295 297 307#
BADDRIVE 07A4 190 948#
BADDRVMESS 08AC 950 1010#
BAK 0008 38# 294
BDOS 0005 44# 84 90 113 253 287 623 635 735 749
755 763 770 975
BEGIN 07DC 52 72 980#
BEGIN2 07EB 986#
BETWMESS 09C0 610 1025#
BITPOS 0A29 662 669 676 683 697 1056#
BRANCH 0400 442# 991
BUF 0080 47# 273 280 326 336 899
BUFF 0A53 386 405 486 488 689 746 1066#
BYTE0 058F 654 659#
BYTE1 059C 657 666#
BYTE2 05A9 656 673#
BYTE3 05B6 652 680#
BYTEPOS 0A2A 688 691 1057#
CAP 034C 272 334#
CAP2 0351 337# 348
CHANGETYPE 0382 369# 388
CHANGETYPE2 0384 371# 377
CHECKBITS 04AD 501 541#
CHECKCOM 027A 212 215#
CHECKFILE 01AE 103# 983
CHECKPRL 0296 213 232#
CHECKRW 03D9 421# 987
CHECKSAME 04D7 562 570#
CHECKSER 0372 361# 990
CHECKSPEC 0255 193# 984
CHECKSPEC2 025A 196# 202
CHECKTYPE 0274 211# 985
CHECKVER 019C 88#
CHNGDRV 06B9 826 833#
CLOSEF 0010 25# 633
COLCRLFSP 09F7 499 1030#
COMPARE 0506 592 598#
COMPATCH 0601 718 721#
COMSERIAL 039D 364 383#
COMTABLE 0A2D 1059#
CONIN 0006 20# 285
CONOUT 0002 19# 769
CR 000D 34# 292 998 1000 1012 1013 1014 1016 1017 1018
1019 1020 1021 1023 1026 1027 1028 1029 1030
CRLF 09F0 645 931 941 1028#
CRLFLF 09F3 972 1029#
CRPATCMESS 093F 496 1018#
CT 0A22 522 525 847 850 1051#
CTRLC 0003 37# 290
CTRLX 0018 36# 288
DELCHAR 0364 350#
DISKRO 077A 930# 962

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```
DISPCT          06BB  534  837#
DISPCT2         06CE  840  846#
DISPCT3         06E9  858  860#
DISPDRV         06A3  822#  913  935
DISPFILE        068D  498  612  644  712  811#  911  944
DISPLAYIT       0649  773#  784  814  819  922
DISPLAYIT2      0662  787#  796  877  901
DISPNUM         0678  607  641  709  799#
DMAF            001A   27#  748
DRIVEMESS       0898  934  1007#
DRVMESS         08A7  912  1009#
ERRMESS         081A  759  1000#
ERRMODE         002D   29#  82
FCB             005C   45#  104  124  144  186  188  252  634  730  732
                       734  754  812  817  824  908  952
FILEBUFF        0A02  110  111  114  118  121  178  187  1039#
FILEPRMTMESS    08BC  107  1012#
FILERO          0792  940#  964
GETNUM          0413  454#  988
GETPASSWD       02CD  257  263#
GETPATCHBITS    0441  443  485#
GREATER         050F  568  605#
GREATER2        0550  626  628  630#
HASMESS         0986  608  1021#
HPATCH          0A1A  563  600  1046#
INIT            0183   77#  982
INPUT           02F5  270  279#  318
INPUT2          02FA  282#  304  313
INPUT3          0336  289  315#
INPUT4          033D  293  320#
INSTLMESS       08DE  606  1014#
INTROMESS       07FD   85  998#
KEEPA           09FD  254  258  284  300  309  372  375  395  398  519
                       531  533  591  593  775  781  789  793  1035#
KEEPD           09FF  530  535  1037#
KEEPE           09FE  528  838  1036#
KEEPH           0A00  774  780  788  792  1038#
LEN             0A17  271  351  353  354  1043#
LESS2MESS       0977  642  1020#
LESSER          0564  567  639#
LESSMESS        0956  640  1019#
LF              000A   35#  998  1000  1012  1013  1014  1016  1017  1018  1019
                      1020  1021  1023  1026  1026  1027  1027  1028  1029  1029
                      1030
LOWDIG          0A28  849  861  1055#
MULTIPLY        0424  464#
MULTIPLY2       0427  467#  470
NCOMMESS        083A  873  1002#
NFMESS          0866  906  1004#
NOCOM           06F7  236  239  242  367  868#
NOFILE          0740  260  904#
NONEMESS        09BB  882  1024#
NONUMMESS       0881  918  1006#
NOPATCHES       0714  555  881#
NOTNUM          075D  424  430  432  476  916#
NOTPTCHD        09D9  927  1027#
```

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```
NUM             0A21   79   422  1050#
NUMBER          0A1B   81   174   425   455   801   804  1047#
NUMTWO          0A23  460   472  1052#
OKMESS          09C6  636  1026#
OPENF           000F   24#  251
OPENFILE        02B3  250#  277   989
PARSE           01CF  117#
PARSE2          01DA  122#  191
PARSE3          01FD  128   142#
PARSEDRIVE      0233  120   177#
PARSEDRIVE2     0242  180   182   184#
PARSENAME       01DF  125#  141
PARSENAME2      01F6  132   134   136#
PARSENUM        021F  130   160   163#
PARSENUM2       0220  149   165#
PARSETYPE       0203  146#  161
PARSETYPE2      0215  151   153   155#
PASSMESS        0870  897  1005#
PATCH1          0A1D  487   509   512   549   579  1048#
PATCH2          0A1F  489   503   506   542   574  1049#
PATCHPOS        0A2B  694   701  1058#
PBYTE           0642  766#  779   803   808   828   842   859   863   954
PBYTE2          0643  614   616   618   768#  791   816   830   844   865   956
PERROR          0639  758#  872   886   891   896   905   917   933   943   949
PHYSERR         07BD  739   959#
PLCPATCH        057A  631   649#
POSNUM          0923  923  1017#
POSTYPE         0904  878  1016#
PRINT           063C   86   108   269   497   500   609   611   643   646   711
                       761#  800   823   874   898   907   919   932   937   942
                       951   968   973
PRLPATCH        0606  719   725#
PRLSERIAL       03AF  366   392#
PRLSERIAL2      03B1  394#  400
PRLTABLE        0A30 1060#
PRSTOP          07CB  637   879   883   888   893   924   928   946   967#
PSTRING         0009   21#  762
QUEST           08CB  268  1013#
QUITPTCH        0774  629   740   926#  965
READ            044E  446   495#
READBUFF        0630  374   385   397   752#
READF           0014   26#  753
RETURN          0000   18#  974
ROMESS          089F  936   945  1008#
ROT             0481  505   508   511   514   517#
ROT2            0488  521#  539
ROTATE          04F4  576   578   581   583   586#
ROTATE2         04F6  588#  595
RSTRING         000A   22#  112   619
RUB             007F   39#  296
RW              0A19  434   439   444  1045#
SERIAL          03C5  378   389   401   404#
SERIAL2         03CD  408#  415
SERMESS         084F  887  1003#
SERTABLE        0A33  406  1061#
SETDMA          0627  373   384   396   745#
```

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SETDMA2	062A	271	747#								
SETREAD	03FA	428	437#								
SETVAL	043A	458	479#								
SKIP	035F	340	342	345#							
SPACE	033F	267	317	324#							
SPACE2	0344	327#	331								
SPEC	0065	46#	194	204	206	218	225	233	240	875	
STACK	0A51	981	1064#								
STOP	07D1	116	291	449	515	713	902	910	914	938	957
		969	971#	992							
TABLE	0A39	75	1062#								
TABLELOAD	05C2	664	671	678	685	687#					
TPASSWD	0A16	264	276	1042#							
TYPE	0A18	208	216	229	244	362	380	716	869	1044#	
VAL	0A24	474	482	565	571	650	660	667	674	681	1053#
VERMESS	0824	892	1001#								
VERSION	000C	73#	89								
WRITE	04C6	448	561#								
WRITERAN	060B	723	727	729#							
WRITERF	0022	28#	733								
WRITPTCH	05F6	632	715#								
WRNGPASS	072C	266	895#								
WRNGSER	071A	411	885#								
WRNGVER	0723	93	96	890#							

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